National Institute of Environmental Health Sciences

Global factors driving emerging infectious diseases

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Abstract:

The extinction of species across the globe is accelerating directly or indirectly from human activities. Biological impoverishment, habitat fragmentation, climate change, increasing toxification, and the rapid global movement of people and other living organisms have worked synergistically to diminish ecosystem function. This has resulted in unprecedented levels of disease emergence driven by human-induced environmental degradation, which poses a threat to the survival and health of biodiversity. What is often overlooked in the discussion of the health consequences to humans is that critically endangered wildlife species are at grave risk of extinction by disease outbreaks. As habitat becomes more compressed and with migration routes cut off, gene pools of small species are stranded in isolated habitat fragments. Species now are vulnerable to encroachment, malnutrition, environmental pollutants, and epidemics from domestic animals and humans. Furthermore, the continuous degradation of ecosystems is leading to increased stress, immunosuppression, and greater susceptibility to disease. Disease can be catastrophic to a diminished stressed population, becoming in some instances the leading factor of local, regional, and global extinctions. The strategies of the new field of conservation medicine include long-term monitoring, health assessment, and interventions to protect species at risk. We particularly must minimize the threat of any potentially catastrophic disease outbreaks resulting from anthropogenic changes to the environment. Current and future diagnostic molecular techniques offer new opportunities to identify tools for the management and possible treatment of diseases in imperiled species.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes

Geographic Feature:

resource focuses on specific type of geography

General Geographical Feature

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

General Health Impact

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified